

ABSTRACT

Disclosed is a method of forming an isolation film in semiconductor devices using a shallow trench. Trenches are formed in silicon substrates of a memory cell region and a peripheral circuit region. The inert ion is then injected into the surface of the trench in the peripheral circuit region, thus forming an amorphous layer. Thereafter, an oxidization process is implemented so that a thick oxide film is grown due to excessive oxidization at the amorphous layer, thus making thicker the trench in the peripheral circuit region than the trench in the memory cell region by a thickness of the oxide film.